ABSTRACT OF THE INVENTION

An oxygenate conversion process and fast-fluidized bed reactor are disclosed having an upper disengaging zone and a lower reaction zone. The process is carried out in a reaction zone having a dense phase zone in the lower reaction zone and a transition zone which extends into the disengaging zone. The feedstock in the presence of a diluent is passed to the dense phase zone containing a non-zeolitic catalyst to effect at least a partial conversion to light olefins and then passed to the transition zone above the dense phase zone to achieve essentially complete conversion. A portion of the catalyst is withdrawn from above the transition zone in the disengaging zone, at least partially regenerated, and returned to a point above the dense phase zone, while catalyst is continuously circulated from the disengaging zone to the lower reaction zone. The process includes a first separation zone in the disengaging zone between the transition zone and at least one cyclone separation stage to separate catalyst from the reaction product. The process and apparatus provide a method for carrying out the overall conversion reaction with a significantly reduced catalyst inventory compared to conventional bubbling bed reactors.